Remarks

Claim 1 to 20 as amended remain in the application and are presented for reconsideration.

Claims 1 to 12 stand allowed. Claims 14 and 18 have been rewritten in independent form and are now believed allowable together with their dependent claims15, 16 and 19. Claims 13 and 20 have been amended to avoid the objection to the term "adapted to."

Claims 13, 17 and 20 have been amended to emphasize features that are not present in the cited art, and these claims are also believed patentable together with their respective dependent claims.

Claims 13 and 20 were rejected under 35 U.S.C. § 103(a) as being allegedly obvious and unpatentable over Moreira et al. U.S. Pat. 6,051,952 in view of Wills et al. U.S. Pat. 5,252,905. Moreira was cited for showing an electric motor speed and direction controller in which the load is a single phase induction motor, and having a variable drive circuit and power switching circuit (100 of Fig. 1) and in which input AC power is applied to the motor with current supposedly being added at portions of the waveform to adjust the AC waveform, citing abstract and col. 5, lines 38 to 57, and where a different or reshaped waveform is applied to the motor at a different frequency, citing abstract, col. 5, lines 38 - 67 and col. 6, lines 1 - 44 and Fig. 12. The Examiner notes that Moreira lacks a control circuit having a sensor with an input coupled to the output drive to the load or motor. Wills is cited for a controller (9) and a phase detector (49).

Moreira 6,051,952 applies the line current directly to one of two motor windings, i.e., line winding W2, and applies power from a power switching circuit 102, i.e., inverter, only to another separate winding or control winding W1. The control circuit is coupled only to the input AC line. From the cited portion at column 5, it is apparent that the windings W1 and W2 are fed with switched power and AC line power respectively, and there is no adding of any portion of the

waveform from the power switching circuit on top of the AC line waveform.

As for Wills, the phase detector is discussed at col. 6, lines 11 to 14. The phase detector has two inputs, and it receives the inverter output waveform on one input and the power line voltage on its other input. Wills is interested in cutting in or out when inverter output and line AC are in phase. Wills's phase detector does not sense the voltage across the load and does not mention or suggest such voltage sensing, and certainly does not employ sensor inputs that are coupled across load at the output means and does not continuously monitor the waveform and frequency of the power applied to load, as specifically recited in Amended Claims 13 and 20.

Claim 17 was rejected under 35 U.S.C. § 103(a) as being allegedly obvious and unpatentable over Wilkerson in view of Moreira. Wilkerson is cited as allegedly showing an AC line current controller with a first and second AC line power source, a controlled switched bridge having AC inputs and a DC terminal, but lacks a control circuit for selectively gating the switch element of the controlled switch bridge. Wilkerson is concerned with an entirely different approach to a problem of improving the power factor, and does this by returning some of the stored DC back to the input AC line at switched intervals. Wilkerson does not sense the load factor at the motor (that is driven entirely by the inverter drive), and does not take any action to affect the waveform that is being applied to the motor or other load device. Wilkerson lacks any means for applying the AC line current directly to the armature of the induction motor, and in fact only the AC inverter drive (178) is connected to the motor (180). The controlled switched bridge, i.e., item (20), only applies DC current to the inverter drive. The object of the Wilkerson design is to correct for phase imbalance on the input between applied voltage and current, and applies some of the DC at very high switch rates back onto the AC line input to correct phase imbalance and improve the power factor. A sensor input (42) for the pulse width modulator (38) is coupled to the AC line input, and the modulator (38) is used for gating the switch transistors (21-1) to (24-1). There is no motivation here to connect sensor inputs for a control circuit across the load, i.e., across the armature of the induction motor.

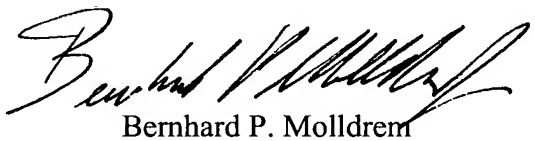
As discussed before, Moreira et al. also lacks a control circuit having sensor inputs across the load.

Accordingly, these references fail to suggest the subject matter of Claim 17 as now asserted.

Claim 19 now depends on Claim 18, which is believed to be allowable.

In view of the foregoing amendments and remarks, it is urged that all of Claims 1 to 20, as allowed or as amended herein, are patentable, and early and favorable consideration is earnestly solicited.

Respectfully submitted



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